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Abstract No. 281

The Corrosion Behavior of Copper-Based Materials Exposed to Natural Seawater

B. Little, R. Ray and P. Wagner
NOArl, Stennis Space Center
MS 39529-5004

F. Mansfield, R. Tsai and H. Shih
University of Southern California
Materials Science Department
Los Angeles, CA 90089-0241

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The corrosion behavior of Cu, Cu-Ni alloys, Admiralty Brass and Al Bronze has been studied as a function of exposure time to natural seawater at the Naval Civil Engineering Laboratory in Port Hueneme, California. Samples were exposed at the open-circuit potential E_{corr} and at - 850 mV vs SCE. The properties of the biofilms and the calcareous deposits were examined as a function of exposure time with electrochemical impedance spectroscopy (EIS) and SEM/EDAX. Comparisons will be made with the results for the stainless steels 304, 316 and Al6X and Ti grade 2 which have been exposed under identical conditions (1,2,3).

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(1) F. Mansfield, R. Tsai, H. Shih, B. Little, R. Ray and P. Wagner, "Results of Exposure of Stainless Steel and Titanium to Natural Seawater", Corrosion/90, paper No. 109

(2) F. Mansfield, C.H. Tsai, H. Shih and B. Little, "An EIS Evaluation of Stainless Steel Exposed to Seawater", 175th Meeting of The Electrochemical Society, Los Angeles, CA, May 1989, paper No. 57

(3) F. Mansfield, R. Tsai, H. Shih, B. Little, R. Ray and P. Wagner, "An Electrochemical Study of Stainless Steels and Titanium Exposed to Natural Seawater. I. Unpolarized Samples", submitted to Corr. Sci.



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